

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the instant application:

Listing of Claims:

1. (Currently Amended) A method of making an electronically tunable dielectric material, the method comprising:

mixing particles of at least one electronically tunable dielectric material and a total of from about 1 to about 80 weight percent of particles of at least two additional metal oxide materials, wherein the at least two additional metal oxide materials are selected from a group consisting of Mg₂SiO₄, MgO, CaTiO₃, MgZrSrTiO₆, MgTiO₃, MgAl₂O₄, WO₃, SnTiO₄, ZrTiO₄, CaSiO₃, CaSnO₃, CaWO₄, CaZrO₃, MgTa₂O₆, MgZrO₃, MnO₂, PbO, Bi₂O₃ and La₂O₃;

sintering the mixture of the particles, wherein the electronically tunable dielectric particles and the additional metal oxide particles have average particle sizes of from about 0.1 to about 5 micron;

forming the electronically tunable dielectric material from the sintered mixture of the particles;

measuring a dielectric constant, a tunability and a dielectric loss for the formed electronically tunable dielectric material;

adjusting an amount of only one metal oxide material of the at least two additional metal oxide materials for a subsequent mixing step; and

repeating the mixing, sintering, forming, measuring and adjusting steps to change the dielectric constant of the formed electronically tunable dielectric material to a desired dielectric constant while maintaining the tunability and the dielectric loss of the formed electronically tunable dielectric material substantially the same.

2. (Cancelled)

3. (Currently Amended) The method of Claim 1, wherein the electronically tunable dielectric particles and the additional metal oxide particles have average particle sizes of from about 1.5 to about 2.5 micron, wherein a first additional metal oxide material of the at least two additional metal oxide materials includes Mg and wherein a second additional metal oxide material of the at least two additional metal oxide materials does not include Mg.

4-6. (Cancelled)

7. (Currently Amended) The method of Claim 1, wherein the dielectric material consists essentially of two of the additional metal oxide phases that are Mg_2SiO_4 and MgO .

8. (Original) The method of Claim 7, wherein the two additional metal oxide phases have a weight ratio of from about 1:100 to about 100:1.

9. (Original) The method of Claim 7, wherein the two additional metal oxide phases have a weight ratio of from about 1:10 to about 10:1.

10. (Currently Amended) The method of Claim 7, wherein the two additional metal oxide phases have a weight ratio of from about 1:5 to about 5:1, wherein the mixing is performed without adding binders to the particles of the at least one electronically tunable dielectric material and the at least two additional metal oxide materials.

11. (Original) The method of Claim 1, wherein the at least one electronically tunable dielectric phase is selected from barium strontium titanate, barium titanate, strontium titanate, barium calcium titanate, barium calcium zirconium titanate, lead titanate, lead zirconium titanate, lead lanthanum zirconium titanate, lead niobate, lead tantalate, potassium strontium niobate, sodium barium niobate/potassium phosphate, potassium niobate, lithium niobate, lithium tantalate, lanthanum tantalate, barium calcium zirconium titanate, sodium nitrate, and combinations thereof.

12-23. (Cancelled)

24. (Previously Presented) The method of Claim 1, wherein the mixture of particles of at least one electronically tunable dielectric material and a total of from about 1 to about 80 weight percent of particles of at least two additional metal oxide materials has a tunability of at least 25 percent at 8V/micron.

25. (Previously Presented) The method of Claim 1, wherein the mixture of particles of at least one electronically tunable dielectric material and a total of from about 1 to about 80 weight percent of particles of at least two additional metal oxide materials has a tunability of at least 30 percent at 8V /micron.

26-31. (Cancelled)

32. (Currently Amended) A method of making an electronically tunable dielectric material, the method comprising:

mixing particles of at least one electronically tunable dielectric material and a total of from about 1 to about 80 weight percent of particles of at least two additional metal oxide materials, wherein the at least two additional metal oxide materials comprise magnesium, wherein the at least two additional metal oxide materials do not include MgO;

sintering the mixture of the particles;

forming the electronically tunable dielectric material from the sintered mixture of the particles;

measuring a dielectric constant, a tunability and a dielectric loss for the formed electronically tunable dielectric material;

adjusting an amount of only one metal oxide material of the at least two additional metal oxide materials for a subsequent mixing step; and

repeating the mixing, sintering, forming, measuring and adjusting steps to change the dielectric constant of the formed electronically tunable dielectric material to a desired dielectric constant while maintaining the tunability and the dielectric loss of the formed electronically tunable dielectric material substantially the same.

33. (Currently Amended) The method of claim 32, wherein the electronically tunable dielectric particles and the additional metal oxide particles have average particle sizes of from about 0.1 to about 5 micron, wherein the at least two additional metal oxide materials are selected from a group consisting of Mg₂SiO₄, MgZrSrTiO₆, MgTiO₃, MgAl₂O₄, MgTa₂O₆, and MgZrO₃.

34. (Previously Presented) The method of claim 32, wherein the electronically tunable dielectric particles and the additional metal oxide particles have average particle sizes of from about 1.5 to about 2.5 micron.

35. (Currently Amended) The method of claim 32, wherein the dielectric material consists essentially of two of the additional metal oxide phases, wherein the mixing is performed without adding binders to the particles of the at least one electronically tunable dielectric material and the particles of the at least two additional metal oxide materials.

36. (Previously Presented) The method of claim 35, wherein the two additional metal oxide phases have a weight ratio of from about 1: 100 to about 100:1.

37. (Cancelled)

38. (Previously Presented) The method of claim 32, wherein the at least one electronically tunable dielectric phase is selected from barium strontium titanate, barium titanate, strontium titanate, barium calcium titanate, barium calcium zirconium titanate, lead titanate, lead zirconium titanate, lead lanthanum zirconium titanate, lead niobate, lead tantalate, potassium strontium niobate, sodium barium niobate/potassium phosphate, potassium niobate, lithium niobate, lithium tantalate, lanthanum tantalate, barium calcium zirconium titanate, sodium nitrate, and combinations thereof.

39. (Previously Presented) The method of claim 32, wherein the mixture of particles of at least one electronically tunable dielectric material and a total of from about 1 to about 80 weight percent of particles of at least two additional metal oxide materials has a tunability of at least 25 percent at 8V/micron.

40. (Previously Presented) The method of claim 32, wherein the mixture of particles of at least one electronically tunable dielectric material and a total of from about 1 to about 80 weight percent of particles of at least two additional metal oxide materials has a tunability of at least 30 percent at 8V/micron.

41. (Currently Amended) A method of making an electronically tunable dielectric material comprising:

mixing particles of at least one electronically tunable dielectric material and particles of at least two additional metal oxide materials that are Mg-free compounds;

sintering the mixture of the particles;

forming the electronically tunable dielectric material from the sintered mixture of the particles;

measuring a dielectric constant, a tunability and a dielectric loss for the formed electronically tunable dielectric material;

adjusting an amount of only one metal oxide material of the at least two additional metal oxide materials for a subsequent mixing step; and

repeating the mixing, sintering, forming, measuring and adjusting steps to change the dielectric constant of the formed electronically tunable dielectric material to a desired dielectric constant while maintaining the tunability and the dielectric loss of the formed electronically tunable dielectric material substantially the same.

42. (Currently Amended) The method of claim 41, wherein the at least one electronically tunable dielectric phase comprises barium strontium, wherein the at least two additional metal oxide materials are selected from a group consisting of WO₃, SnTiO₄, ZrTiO₄, CaSiO₃, CaSnO₃, CaWO₄, CaZrO₃, MnO₂, PbO, Bi₂O₃ and La₂O₃.

43. (Currently Amended) The method of claim 41, wherein the particles of the at least two additional metal oxide materials comprise a total of from about 1 to about 80 weight percent of the mixture of the particles, wherein the mixing is performed without adding binders to the particles of the at least one electronically tunable dielectric material and the particles of the at least two additional metal oxide materials, and wherein the at least two additional metal oxide materials do not include Al, Zr and Si, wherein one of the additional metal oxide materials comprises MgO.